

In the claims:

1. (Cancelled)

2. (Currently Amended) A priority data transfer method for a communication system using random access control, said priority data transfer method comprising the steps of:

detecting collision of a ~~send~~sent packet against other packet on a transmission line (a collision detection step);

upon the detection of the collision of the packet against other packet in the collision detection step, generating a random number (a random number generation step);

judging the priority level of the ~~send~~sent packet (a priority level judging step);

generating a delay time, which elapses until the ~~send~~sent packet is resent, based on the random number generated in the random number generation step and the priority level of the ~~send~~sent packet judged in the priority level judging step (a delay time generation step); and

resending the packet after the elapse of the delay time generated in the delay time generation step;

said method further comprising the step of::

providing a hop count recording field for recording a hop count as a measure of the priority level of the sent packet; and

judging the priority level of the sent packet based on the hop count recorded in the hop count recording field; and

wherein, in the delay time generation step includes multiplying the random number generated in the random number generation by a value obtained by subtracting a value proportional to the hop count from 1 (one) to generate the delay time, and

wherein the resending step includes preferentially resending the packet having a larger hop count recorded in the hop count recording field.

3. – 4. (Cancelled)

5. (Currently Amended) A priority data transfer method for a communication system using random access control, said priority data transfer method comprising the steps of:

detecting collision of a sent packet against other packet on a transmission line (a collision detection step);

upon the detection of the collision of the packet against other packet in the collision detection step, generating a random number (a random number generation step);

judging the priority level of the sent packet (a priority level judging step);

generating a delay time, which elapses until the sent packet is resent, based on the random number generated in the random number generation step and the priority level of the sent packet judged in the priority level judging step (a delay time generation step); and

resending the packet after the elapse of the delay time generated in the delay time generation step. ~~The priority data transfer method according to claim 2, wherein:~~

a priority value recording field for recording a priority value as a measure of the priority level of the ~~send~~sent packet is provided in the ~~send~~sent packet; and

in judging the ~~send~~sent packet priority level in the priority level judging step, the priority level of the ~~send~~sent packet is judged based on the priority value recorded in the priority value recording field; and

wherein the random number generated in the random number generation step is multiplied by a value proportional to the priority value of the sent packet to generate the delay time, and

the packet having a higher priority level recorded in the priority value recording field is preferentially sent.

6. (Cancelled) .

7. (Currently Amended) ~~The priority data transfer method according to claim 5 or 6~~claim 5, wherein the priority level of the ~~send~~sent packet increases with decreasing the priority value.

8. (Currently Amended) A priority data transfer method for a communication system using random access control, said priority data transfer method comprising the steps of:

detecting collision of a sent packet against other packet on a transmission line (a collision detection step);

upon the detection of the collision of the packet against other packet in the collision detection step, generating a random number (a random number generation step);
judging the priority level of the sent packet (a priority level judging step);
generating a delay time, which elapses until the sent packet is resent, based on the random number generated in the random number generation step and the priority level of the sent packet judged in the priority level judging step (a delay time generation step); and
resending the packet after the elapse of the delay time generated in the delay time generation step. ~~The priority data transfer method according to claim 2, wherein:~~

the ~~send~~sent packet has

a ~~send-data~~sent data length recording field for recording the length of ~~send-data~~sent data as a measure of the priority level of the ~~send~~sent packet, and

a continued data recording field for indicating whether continued data of the ~~send~~sent packet is present or absent, and

in judging the ~~send~~sent packet priority level in the priority level judging step, the priority level of the ~~send~~sent packet is judged based on the ~~send-data~~sent data length and the continued data

wherein, in the delay time generation step,

the random number generated in the random number generation step is multiplied by a value obtained by subtracting a value proportional to the data size from 1 (one), and, when the continued data is present, in addition, the obtained value is multiplied by a predetermined value to generate a delay time.

9. (Currently Amended) The priority data transfer method according to claim 8, ~~wherein, in the delay time generation step,~~

~~the random number generated in the random number generation step is multiplied by a value obtained by subtracting a value proportional to the data size from 1 (one), and, when the continued data is present, in addition, the obtained value is multiplied by a predetermined value to generate a delay time, and~~

the packet having a larger data size recorded in the sent~~send~~ data length recording field is preferentially sent, and

when the data size is identical, the packet, wherein continued data is present in the continued data recording field, is preferentially sent.

10 (Cancelled).

11. (Currently Amended) A priority data transfer method for a communication system using random access control, said priority data transfer method comprising the steps of:

detecting collision of a sent packet against other packet on a transmission line (a collision detection step);

upon the detection of the collision of the packet against other packet in the collision detection step, generating a random number (a random number generation step);

judging the priority level of the sent packet (a priority level judging step);

generating a delay time, which elapses until the sent packet is resent, based on the random number generated in the random number generation step and the priority level of the sent packet judged in the priority level judging step (a delay time generation step); and

resending the packet after the elapse of the delay time generated in the delay time generation step.~~The priority data transfer method according to claim 10,~~

wherein the sent packet has

a hop count recording field for recording a hop count as a measure of the priority level of the sent packet, and

a priority value recording field for recording a priority value as a measure of the priority level of the sent packet, and

in judging the sent packet priority level in the priority level judging step, the priority level of the sent packet is judged based on the hop count and the priority value, and

wherein, in the delay time generation step,

the random number generated in the random number generation step is multiplied by a value proportional to the priority value and then by a value obtained by subtracting a value proportional to the hop count from 1 (one), whereby the delay time is generated, and

the packet having a higher priority level and the packet having a larger hop count are preferentially sent.

12. (Currently Amended) The priority data transfer method according to claim ~~10 or~~ 11, wherein the priority level of the ~~send~~sent packet increases with decreasing the priority value.

13. (Currently Amended) The priority data transfer method according to any one of claims ~~1 to 12~~ 2, 5, 7, 8 or 11-12, wherein the communication system is a radio communication system.

14. (New) A priority data transfer method for a communication system using random access control comprising the steps of:

detecting collision of a sent packet against other packet on a transmission line;

judging as to whether recycle of said sent packet is over or not;

making a request for determination of a back-off time for retransmitting said sent packet when said recycle of said sent packet is not over;

generating a random number upon receipt of said request;

determining a priority level of said sent packet based on a hop count of said sent packet;

generating said back-off time based on said random number and said priority level of said sent packet;

resending said sent packet after elapse of said back-off time;

wherein said sent packet having a larger hop count is preferentially sent;

wherein:

the back-off time is calculated by multiplying said random number by a value which is obtained by subtracting a division of said hop count by a maximum hop count from 1 (one).

15. (New) The priority data transfer method according to claim 14, wherein:

said hop count is recorded in a hop count recording field of said sent packet.

16. (New) The priority data transfer method according to claim 14, wherein:
a priority value is obtained as a measure of said priority level of said sent packet, and
said back-off time is determined as a product of said random number and said priority
value.

17. (New) The priority data transfer method according to claim 16, wherein:
said priority level of said sent packet increases in accordance with decrease of said
priority value.

18. (New) The priority data transfer method according to claim 16, wherein:
a priority value recording field for recording said priority value is provided in the sent
packet.”

19. (New) A priority data transfer method for a communication system using
random access control comprising the steps of:

detecting collision of a sent packet against other packet on a transmission line;
judging as to whether recycle of said sent packet is over or not;
making a request for determination of a back-off time for retransmitting said sent
packet when said recycle of said sent packet is not over;
generating a random number upon receipt of said request;
determining a priority level of said sent packet based on a hop count of said sent
packet;
generating said back-off time based on said random number and said priority level of
said sent packet;
resending said sent packet after elapse of said back-off time;

wherein said sent packet having a larger hop count is preferentially sent;

wherein the sent packet has:

a sent data length recording field for recording the length of sent data as a measure of the priority level of the sent packet, and

a continued data recording field for indicating whether continued data of the sent packet is present or absent, and

in determining the priority level of the sent packet, the priority level of the sent packet is judged based on the sent data length and the continued data

wherein, in the back-off time generating step,

the random number generated in the random number generating step is multiplied by a value obtained by subtracting a value proportional to the data size from 1 (one), and, when the continued data is present, in addition, the obtained value is multiplied by a predetermined value to generate a delay time.

20. (New) The priority data transfer method according to claim 19, wherein

the packet having a larger data size recorded in the send data length recording field is preferentially sent, and

when the data size is identical, the packet, wherein continued data is present in the continued data recording field, is preferentially sent.

21. (New) A priority data transfer method for a communication system using random access control comprising the steps of:

detecting collision of a sent packet against other packet on a transmission line;

judging as to whether recycle of said sent packet is over or not;

making a request for determination of a back-off time for retransmitting said sent packet when said recycle of said sent packet is not over;

generating a random number upon receipt of said request;

determining a priority level of said sent packet based on a hop count of said sent packet;

generating said back-off time based on said random number and said priority level of said sent packet;

resending said sent packet after elapse of said back-off time;

wherein said sent packet having a larger hop count is preferentially sent;

wherein the sent packet has:

a hop count recording field for recording a hop count as a measure of the priority level of the sent packet, and

a priority value recording field for recording a priority value as a measure of the priority level of the sent packet, and

in determining the priority level, the priority level of the sent packet is judged based on the hop count and the priority value.

22. (New) The priority data transfer method as recited in claim 21, wherein, in the back-off time generating step,

the random number generated in the random number generating step is multiplied by a value proportional to the priority value and then by a value obtained by subtracting a value proportional to the hop count from 1 (one), whereby the back-off time is generated, and

the packet having a higher priority level and the packet having a larger hop count are preferentially sent.

23. (New) A priority data transfer method for a communication system using random access control comprising the steps of:

detecting collision of a sent packet against other packet on a transmission line;

judging as to whether recycle of said sent packet is over or not;

making a request for determination of a back-off time for retransmitting said sent packet when said recycle of said sent packet is not over;

generating a random number upon receipt of said request;

determining a priority level of said sent packet based on a hop count of said sent packet;

generating said back-off time based on said random number and said priority level of said sent packet;

resending said sent packet after elapse of said back-off time;

wherein said sent packet having a larger hop count is preferentially sent.

24. (New) The priority data transfer method according to claim 23, wherein:
said hop count is recorded in a hop count recording field of said sent packet.

25. (New) The priority data transfer method according to claim 23, wherein:
a priority value is obtained as a measure of said priority level of said sent packet, and
said back-off time is determined as a product of said random number and said priority value.

26. (New) The priority data transfer method according to claim 25, wherein:
said priority level of said sent packet increases in accordance with decrease of said priority value.

27. (New) The priority data transfer method according to claim 25, wherein:
a priority value recording field for recording said priority value is provided in the sent packet.

28. (New) The priority data transfer method according to claim 23, the sent packet has

a sent data length recording field for recording the length of sent data as a measure of the priority level of the sent packet, and

a continued data recording field for indicating whether continued data of the sent packet is present or absent, and

in judging the sent packet priority level in the priority level judging step, the priority level of the sent packet is judged based on the sent data length and the continued data.

29. (New) The priority data transfer method according to claim 28, wherein

the packet having a larger data size recorded in the sent data length recording field is preferentially sent, and

when the data size is identical, the packet, wherein continued data is present in the continued data recording field, is preferentially sent.

30. (New) The priority data transfer method according to claim 23, wherein the send packet has

a hop count recording field for recording a hop count as a measure of the priority level of the send packet, and

a priority value recording field for recording a priority value as a measure of the priority level of the send packet, and

in judging the send packet priority level in the priority level judging step, the priority level of the send packet is judged based on the hop count and the priority value.

31 (New) The priority data transfer method according to claim 30, wherein, in the back-off time generation step,

the random number generated in the random number generation step is multiplied by a value proportional to the priority value and then by a value obtained by subtracting a value proportional to the hop count from 1 (one), whereby the back-off time is generated, and

the packet having a higher priority level and the packet having a larger hop count are preferentially sent.